

the elements of water, until they combine with a base which supplants the basic water" (vol. i., p. 26). A large number of mistakes are made. "In the process of digestion the carbohydrates are converted by the saliva into cane sugar (maltose, $C_{12}H_{22}O_{11}$) and further into dextrose and levulose," both of which are regarded as varieties of glucose (vol. ii., p. 268). Fish oil is said to be a hydrocarbon. There is a considerable amount of confusion. Dyer's solvent in soil analysis is variously stated to be 1 per cent. nitric acid, 1 per cent. ammonium citrate solution (which is in one place said to be a weak acid and in another an alkali), and 1 per cent. citric acid. The bacterial reduction of nitrates taking place in absence of air, and the evolution of nitrogen from organic matter decomposing in presence of air, get hopelessly confused in the article on denitrification. In describing calcium cyanamide, "the form of lime-nitrogen in which the nitrogen is derived from the air," no distinction whatever is drawn between this substance and the Notodden calcium nitrate; the writer evidently regards them as one and the same thing. Contradictions are not infrequent; under nitrate of soda it is stated that "soda never has been found to be of appreciable manurial value," yet the same writer sixty pages back was insisting on the advantage of manuring mangolds with salt! The author has not much faith in his own chemistry; he impresses on us that there are "forces of vitality which in many cases modify the action of chemical laws and even render them abortive."

It would be easy to multiply instances. The result is all the more regrettable since it conveys an impression of general carelessness and inaccuracy which would not be justified. These unfortunate mistakes make the book an unsafe guide for the student, and prevent it from taking a high place in agricultural literature. It cannot, however, be urged that they are likely to mislead the farmer in his practice. Even with all their errors these articles make interesting reading, and are calculated to show the farmer, if he still needs showing, that there is something in the application of science to practice, and thus to clear the way for the county council lecturer or the agricultural college.

E. J. RUSSELL.

THE CAMPAIGN AGAINST TUBERCULOSIS.

The Prevention of Tuberculosis. By Dr. Arthur Newsholme. Pp. ix+429. (London: Methuen and Co., n.d.) Price 10s. 6d. net.

THE native races of the tropics have their various plagues and pestilences; tuberculosis is generally regarded as the white man's scourge. The incidence of tuberculous diseases among the inhabitants of the British Isles is indeed a heavy one, as shown by the statistical data contained in the opening chapter of the book under review, but it may not be so generally known that tuberculosis has been introduced by the colonising white man among many native races, among whom in some instances it is assuming alarming proportions. On these grounds, therefore, there is ample justification for the publication of this work,

which deals first with the causes, and then with the prevention, of this disease.

The first paragraph of the book strikes the keynote of the subsequent matter:—

"Tuberculosis is a disease caused by the destructive lesions set up in the lungs or in other parts of the body by a special bacillus or microbe. The disease is infectious, *i.e.* is communicable from man to man and from animals to man; and it never originates in the body apart from the invasion of the special bacillus."

Tuberculosis, therefore, being placed among the infective diseases, it is natural to compare the death-rate due to it with that of the chief infective diseases—measles, whooping-cough, diarrhoea, enteric, scarlet and typhus fevers, small-pox and diphtheria. We learn that in 1904 the number of deaths in England and Wales from all these were 67,154; from tuberculous diseases there were 60,205, or, in other words, tuberculous diseases in 1904 caused sixty deaths for every sixty-seven caused by the aggregate of the chief acute infectious diseases!

In chapter ii. the magnitude of the evil is discussed from the economic point of view. Thus, taking the statistics of the phthisis (consumption) admissions to the Brighton workhouse infirmary from July 15, 1897, to May 23, 1905, Dr. Newsholme calculates that the cost to the rate-payers amounted to more than 1000*l.* per annum, and on this basis the indoor relief expended on the treatment of consumptives in the workhouse infirmaries of England and Wales amounts to 331,000*l.* per annum. A brief but sufficient sketch of the history, morbid anatomy, and symptoms of phthisis and an account of the tubercle bacillus follows, and then in chapters vii.-ix. the important question of the infectivity of tuberculosis is discussed. Of this the author has no doubt, and the portals and channels of infection are considered in succeeding chapters. It is satisfactory to find that tuberculosis is declining, and in part ii. the causes of the reduction in mortality from phthisis from 281 per 100,000 living in 1850-4 to 123 in 1901-4 are surveyed. The argument and conclusion are that *institutional segregation* is the predominant cause of the decline of phthisis in this country.

Finally, in part iii. the measures for the reduction and annihilation of tuberculosis are discussed. The author favours the view that the diminution of infection outweighs in importance the diminution of the conditions favouring infection, and therefore the early recognition of the disease together with notification are of importance, for then institutional segregation and sanatorium treatment may be secured at that early stage so essential if a cure is to be hoped for, so necessary for the prevention of infection. The various preventive methods are discussed in some detail, and the administrator will gather many valuable hints from a perusal of this portion of the book.

Although, as stated in the preface, written almost entirely from the standpoint of the public health administrator, and intended primarily for medical officers of health, the book is free from technicalities,

and may be commended to the notice of a much wider public, viz. all those interested in the national question of the prevention of tuberculosis and in the public health. The book is light to hold, is printed in pleasant type, and is illustrated with numerous statistical charts and some figures. R. T. H.

TRADITION AND MONUMENTAL REMAINS.

Folk Memory, or the Continuity of British Archaeology. By Walter Johnson. Pp. 416. (Oxford: Clarendon Press, 1908.) Price 12s. 6d. net.

MR. JOHNSON puts before the student of tradition a study which, whether or not it be accepted in all its details, will be recognised as a valuable addition to our knowledge of the archaeological remains of our country. It tells us both of the means by which these remains have often been preserved and of the machinery by which a great mass of tradition has been handed down during the ages. A monument is protected by a custom, superstition or tradition attached to it, while the much frailer life of the custom, superstition or tradition is preserved by the continued existence of the monument. It is obvious that we have here a most fruitful and hitherto largely neglected source of information. Even where tradition has obviously gone wrong, the point where it has gone wrong and the reasons and influence which have caused this deflection are laid bare by Mr. Johnson in many cases, and become a not unimportant part of his inquiry. We frankly confess that, despite objections here and there to conclusions wrongly drawn or drawn from authorities not of the first order, we are impressed by the cumulative value of the evidence which Mr. Johnson adduces. He is sound on most of the scientific problems he deals with, and does not allow his theory to master him.

Mr. Johnson is not always just to his own theory. Thus he directs attention to the important fact that in the Isle of Man it was believed that to pasture sheep on ground which was marked by a stone circle would surely bring disease to the flock, and he goes on to observe that "we call these ideas survivals, and thus hide their true character; in their totality they indicate, not spasmodic survivals, but continuity of development." The introduction of the qualification "spasmodic" is here wholly unwarranted. Survival is not spasmodic, but continuous, and Mr. Johnson not only spoils his own argument, but suggests that he does not understand the true significance of Mr. Tylor's admirable term. Again, he is not always correct in his evidence. His reference to the so-called Boadicea's tomb at Hampstead is to Mr. Read's admirable excavation of it and the suggestion, quite tentative, of its being a tomb of the Bronze age; but further research has been made into this subject, and it is now almost certain that this so-called tomb is a boundary mark of the Roman period, a *botontinus*, in fact, and the legend attaching it to Boadicea is explainable on this origin. We give these examples of faulty research or faulty argument, not for the purpose of discounting Mr. Johnson's work, but merely to show that even after the exhaustive inquiry

he has made and the care with which he has marshalled the great mass of facts he has to deal with, there is still much to be done; and the much to be done confirms Mr. Johnson's general conclusions. In these two cases correction would mean additional evidence entirely of the kind that Mr. Johnson advances throughout his work.

The book is usefully, though not elaborately, illustrated, contains full and complete references to authorities, and has a good index. Its scope will be gathered by the following summary of its contents:—the continuity of the ages of Stone and Bronze, racial continuity, links between the prehistoric and proto-historic ages, traces of the ages of Stone and Bronze shown by later implements, stone and bronze in ceremonies and superstitions, the later history of the megaliths, fairies, mound-treasure and barrow superstitions, the reputed virtues of iron, our oldest industry (stone implements), dene holes, linchets, dew ponds, incised figures of our chalk downs, old roads and trackways.

VACCINATION AND OPSONIC ACTION.

Vaccine Therapy and the Opsonic Method of Treatment. By Dr. R. W. Allen. Second edition. Pp. xii + 244. (London: H. K. Lewis, 1908.) Price 7s. 6d. net.

THIS book will be found exceedingly useful at the present time, when vaccine therapy has become so popular and in certain fields has achieved such brilliant results. According to the author, the best results are, as a rule, obtained only when vaccination is carried out under the guidance of the opsonic index, but a critical study of his evidence in support of this belief will rather lead one to conclude that good results have been got in spite of the opsonic index and in spite of negative phases. The use of the expression "opsonic method of treatment," forming part of the title of the book, must be strongly deprecated. It is unscientific, and can appeal only to the indiscriminating reader who is unaware of the multiplicity of antibodies elaborated in response to vaccination.

The author commences with a summary review of current opinion on the nature of opsonic action. He believes that the weight of present evidence goes to show that opsonic action, like hæmolytic action, is due to the cooperation of thermostable amboceptor with a thermolabile complement. The practical difficulties in opsonic technique which must yet be overcome in order to do justice to this conception have not, however, been touched upon, nor has the author taken count of this conception in the interpretation of many of the opsonic results tabulated throughout the book. Regarding the site of formation of opsonin, the author concludes from his own experiments that this resides in the muscle tissues. He adduces in support of this view that the opsonic index of muscle plasma from an amputated leg was 1·4 towards various micro-organisms. Further, he mentions that a case of tubercular ulceration which had previously resisted treatment did well when the tuberculin was "injected in a concentric manner round the area of ulceration." We are not told whether the tuberculin was injected intra-